WHAT IS CLAIMED IS:

1. A machine tool, comprising:

an X-axis moving unit, a Y-axis moving unit, and a Z-axis moving unit for producing relative movements between a tool and a workpiece along the respective directions of an X-axis, a Y-axis, and a Z-axis, which differ from one another;

a C-axis drive unit for rotating the workpiece about a C-axis parallel to the Z-axis; and

a B-axis turning unit for turning the tool about a B-axis which is defined on the B-axis turning unit and is parallel to the Y-axis, wherein

the tool is disposed in such a manner that a machining point of the tool substantially coincides with the B-axis, and

the moving units, the drive unit, and the turning unit are controlled in such a manner that a work point of the workpiece substantially coincides with the machining point of the tool.

2. A machine tool according to claim 1, wherein the B-axis turning unit is disposed on the Y-axis moving unit in such a manner that the B-axis substantially coincides with a center axis of a movable member of the Y-axis moving unit, the center axis extending along the Y-axis direction; and the tool is disposed on the B-axis turning unit.

3. A machine tool according to claim 2, wherein the C-

axis drive is disposed on the Z-axis moving unit in such a manner that the C-axis substantially coincides with a center axis of a movable member of the Z-axis moving unit, the center axis extending along the Z-axis direction.

4. A machine tool according to claim 1, wherein the machine tool has a bed having a horizontal top surface and a vertical side surface,

wherein the X-axis moving unit is disposed on the horizontal top surface of the bed, the Z-axis moving unit is disposed on the X-axis moving unit, and the C-axis drive unit is disposed on the Z-axis moving unit, and

wherein the Y-axis moving unit is disposed on the vertical side surface of the bed in such a manner that a Z-axis-direction center axis of the movable member of the Z-axis moving unit perpendicularly intersects a Y-axis-direction center axis of the movable member of the Y-axis moving unit, the B-axis turning unit is disposed on the Y-axis moving unit, and the tool is disposed on the B-axis turning unit.

5. A machine tool according to claim 4, wherein the bed is formed through casting and has a hollow structure and a hole as cast; and

a cover is provided to cover the hole as cast in order to close the interior of the bed.

6. A machine tool according to claim 5, wherein a liquid is charged into the interior of the bed.

7. A machine tool according to claim 6, wherein the liquid is oil, or water containing a rust preventing agent.

8. A bed structure for a machine tool, comprising:

a bed formed through casting, the bed having a hollow structure and a hole as cast; and

a cover for covering the hole as cast in order to close the interior of the bed.

9. A bed structure according to claim 8, wherein a liquid is charged into the interior of the bed.

10. A bed structure according to claim 9, wherein the liquid is oil, or water containing a rust preventing agent.